Sheffield Hallam University

Low-Contact Co-Design: Considering more flexible spatiotemporal models for the co-design workshop

DAVIS, Aaron, NIKI, Wallace, LANGLEY, Joseph <http://orcid.org/0000-0002-9770-8720> and IAN, Gwilt

Available from Sheffield Hallam University Research Archive (SHURA) at:

http://shura.shu.ac.uk/28142/

This document is the author deposited version. You are advised to consult the publisher's version if you wish to cite from it.

Published version

DAVIS, Aaron, NIKI, Wallace, LANGLEY, Joseph and IAN, Gwilt (2021). Low-Contact Co-Design: Considering more flexible spatiotemporal models for the co-design workshop. Strategic Design Research Journal, 14 (1).

Copyright and re-use policy

See http://shura.shu.ac.uk/information.html

Sheffield Hallam University Research Archive
http://shura.shu.ac.uk

STRATEGIC DESIGN RESEARCH JOURNAL

Low-Contact Co-Design: Considering more flexible spatiotemporal models for the co-design workshop

Aaron Davis [a] * | Niki Wallace [a] | Joe Langley [b] | Ian Gwilt [a]

[a] University of South Australia, UniSA Creative: Adelaide, Australia.
[b] Sheffield Hallam University, Lab 4 Living: Sheffield, UK.
* Corresponding author: aaron.davis@unisa.edu.au

ABSTRACT

The recent global experience of COVID-19 has problematized the face-to-face co-design process and forced co-design researchers and practitioners to rethink the process of collaboration that typically takes place in a co-design workshop. This paper considers how we might continue to co-design when physical proximity is not possible. Recognising that technology has long played a role in co-design practice, we argue that to date, the technologically mediated experience of co-design has been largely based on the assumption of replicating the physical and embodied experience of the co-design workshop. Rather than accepting the deficit culture implied through the curtailing of much of the conventional face-to-face activities we associate with co-design, this paper reports on proactive research into novel possibilities for continuing collaborative research work through the concept of 'low-contact co-design'. A series of proprietary visual models that explore a range of spatiotemporal conditions within which co-design practices can occur are presented. Opportunities for engaging with new communities, and in new processes are highlighted and a spatiotemporal framework for planning co-design processes is presented.

Keywords: Co-Design, Co-Creation, Low-Contact Co-Design, Spatiotemporal Models, Distributed Engagement.

INTRODUCTION

The workshop has played a fundamental role in the process of co-design for the past 50 years. The recent global experience of COVID-19 however, has problematized the co-design process and forced co-design researchers and practitioners to rethink the process of collaboration, and consider how we might co-design when physical proximity is not possible.

One of the initial responses to this challenge has been to turn to technologically mediated approaches to collaboration that connect participants through ICT-based platforms. The transition from face-to-face workshops to these digital environments has been discussed at length in a number of co-design forums including within the European Network of Living Labs, and OpenIDEO. Although digital technology has been successfully used in co-design practice, this paper presents a series of new explorations in response to COVID-19.

1. BACKGROUND

The process of co-design, from a western perspective, has its roots in the Participatory Design movement in Scandinavia in the 1970s (Sanders & Stappers, 2008). Its history and development can be traced in various parts of the world, from the 1970s through to today

but, at the core of this practice has been the focus on people coming together to discuss ideas and form solutions to challenges (Björgvinsson et al., 2012; Ehn, 2011; Karasti, 2014). The idea that 'we are better together' underpins many collaborative approaches which aim to work with people rather than for (or on) them (Manzini, 2015).

Furthermore, it is possible to place co-design under the rubric of co-creation, also born out of the Participatory Design movement (Sanders & Stappers, 2008). Co-creation is embraced by designers as a collaborative creative process in many forms, including co-design, participatory design, contextual inquiry or human/user-centred design (Björgvinsson et al., 2012; Ehn, 2011; Karasti, 2014;l Mulder & Stappers, 2009). Under the banner of co-creation these methods can all be understood as processes of involvement. Each is unique but there are frequent overlaps in language, process, desired outcomes, and inherent challenges (Björgvinsson et al., 2012).

The focus of this paper is co-design, which is understood as a process of joint labour in creative thinking and doing processes. There is no implied hierarchy in this understanding of co-design; collaborators participate in processes and contribute to outcomes throughout the project's multiple stages. In this sense, designers/researchers are not positioned above collaborators as process experts. Rather, the intent of co-design as discussed throughout this paper is collaboration in a cooperative and distributed form.

2. CONTEXT

The need for social distancing in response to the COVID-19 pandemic has disrupted the model of co-design through face-to-face workshops. In many countries, social distancing restrictions and personal safety guidelines have made it difficult, if not prohibitive, to bring workshop participants together in the same physical space. Furthermore, participants from a range of demographics can be challenged by digital responses to these restrictions.

While the restrictions placed on co-design workshops by COVID-19 are unprecedented, discussions around the limitations of face-to-face workshops have been taking place informally in the field of co-design for some time. Beyond the general agreement that co-design methods can offer a useful tool for engaging with a variety of communities, there are a series of core questions that are often described uncritically in the literature when reporting case study projects. These include:

- 'Who' should and/or can participate?
- 'What' should and/or can be done?
- 'Where' should and/or can co-design take place?
- 'When' should and/or can co-design happen?

These factors have a significant impact on both the conditions for stakeholder engagement and the organizational/resource implications for workshop facilitation. In the sub-sections that follow we unpack the tenets associated with these questions before discussing how 'new normals' for social collaboration in a post-COVID-19 context might play into this debate. Following this is a discussion of the consideration of these 'new normals' in the development of Low-Contact Co-Design approaches.

Davis, A., Wallace, N. Langley, J. & Gwilt I. (2021). Low-Contact Co-Design: Considering more flexible spatiotemporal models for the co-design workshop. *Strategic Design Research Journal*. Volume 14, number 01, January – April 2021. 124-137. DOI: 10.4013/sdrj.2021.141.11

2.1. 'Who' Should And/Or Can Participate?

There is a general agreement that engaging people in decision making processes that affect them is a good idea (Petrescu, Petcou and Baibarac, 2016; Krzywoszynska et al. 2016; Manzini and Rizzo, 2011). However, the question of who should and/or can participate requires stepping beyond this notion of 'everyone' to critically evaluate the structures for participation. Binder et al. (2015) and Munthe-Kaas and Hoffmann (2016) for example, situate their work as 'democratic design experiments', suggesting the co-design process can sit 'between the parliament and the laboratory', expanding the co-design process into communities to encourage broad and open participation (Binder et al., 2015). However, as London and Cadman (2009) caution, by opening participation to those who elect to participate rather than to a representative sample of the population, these apparently open participation methods can be considered exclusionary. Criticism of the notion of 'open participation' can also be found in the earlier work of Sherry Arnstein (1969) who highlights that the ability to participate is often constrained by social, cultural and economic factors. We often talk about multi-level stakeholder representation — but how representative are these representatives? And how much effort is invested by different stakeholders relative to the proportional benefit each stakeholder receives?

2.2. 'What' Should And/Or Can Be Done?

Engaging stakeholders in co-defining problems and co-designing outcomes requires some appreciation of how challenging collaborative processes can be. According to Esteva (1987), a successful collaboration is a process of co-motion, 'moving forwards, together'. In both Muller's (2014) and Wallace's (2020b) work, Esteva's concept of co-motion was significant in gaining consensus within collaborative working groups spanning multiple organizations, institutions, and cultures. The principles of co-motion create an acceptance of more inclusive aims — to move 'a whole' group forwards without leaving anyone behind. Consensus in groups with distributed or horizontal power dynamics does not dilute ideas or lead to 'design by committee', but rather is a group agreement that a proposal feels 'good enough for now and safe enough to try' (Bockelbrink et al., 2020), or what Laloux (2014) calls having 'no principled objection' (2014, p. 67). Similar processes can be found in the work of Forester (2013), as well as in the notion of dialogic co-creation described in Davis (2019). In both instances, the processes rather than outcomes of collaboration are highlighted as being of fundamental importance.

In practical terms, workshop participation is often performed through paper and markers, and thinking-by-making activities. However, it is the tacit and somewhat invisible aspects of interaction in this space that contribute to the popularity of the workshop format. Face-to-face interactions, the relations between people who share their multiple perspectives, and the energetic exchange that occurs creates a dynamic primary experience that becomes tangible as it is documented.

Sanders and Stappers (2014) argue for the importance of making and the physicality of co-design activities. They also highlight the important role played by cultural probes (Gaver et al., 1999) and a variety of analogue prototyping tools (Sanders & Stappers, 2008; 2012; 2014). Although often deployed within the co-design workshop, co-design practitioners have also used these tools as information gathering tools beyond the boundaries of the workshop. In particular, the cultural probe and associated methods have been widely used to capture data from people's everyday experiences. This paper reflects upon and explores research

Davis, A., Wallace, N. Langley, J. & Gwilt I. (2021). Low-Contact Co-Design: Considering more flexible spatiotemporal models for the co-design workshop. *Strategic Design Research Journal*. Volume 14, number 01, January – April 2021. 124-137. DOI: 10.4013/sdrj.2021.141.11

that extends the typology of cultural probes to include an expanded set of tools that take people through multiple iterations of distributed co-design activities.

2.3. 'Where' Should And/Or Can Co-Design Take Place?

Co-design practices have developed primarily through the synchronous shared space in which 'users' come together with 'designers' to explore a challenge. This shared space has evolved into the co-design workshop that is commonly facilitated by designers and/or researchers within design studios, universities, community centers, or other public spaces. Although there is significant variation in the locations at which these events take place, the focus on creating a shared physical space in which people can interact in real-time is a common foundation in co-design practice.

The conditions for creating positive engagement within this space are well described by Forester (2013) and others who highlight the importance of flattening hierarchies and encouraging meaningful participation through a choreography of activities and spaces. Various tools, including Lego® Serious Play® and others, have served to establish a strong collaborative ethos among participants (Pierri, 2017).

In recent years, a number of attempts have been made to translate the physical space of collaboration into digital and virtual environments. The importance but also the limitations of these digitally enabled collaborative spaces have become increasingly evident through COVID-19. A critique of these spaces can be found in Sennett's (2012) work where he describes the experience of collaborating on an early release of the now defunct Google Wave (Sennett, 2012). In his discussion of the reasons why this virtual space was not successful, Sennett (2012) highlights the importance of dialogic rather than dialectic communication; wherein, communicative patterns based on a heterogenic offerings are privileged, rather than a dialectic model which seeks simple consensus of views.

As mentioned there are established examples of analogue approaches to co-design processes that extend beyond the boundaries of a workshop. The use of cultural probes and other distributed data collection tools including citizen science approaches are recognized as distributed techniques for the democratic collection of data (Silvertown, 2009; Woods et al., 2018). However, co-design practice often relies on the data collected through these techniques being brought back into a central 'workshop' space (Prendiville et al., 2017).

2.4. 'When' Should And/Or Can Co-Design Happen?

The question of 'when' co-design can happen is often reported on in terms of time of day, or day of week concerns in order to maximize participation (see for example Petrescu et al., 2016). However, the way in which co-design can engage with people across longer time periods and build evidence through asynchronous participation is not often recognized as being of significance in projects, despite the use of methods that may allow this.

There are examples of co-design processes that take place across long time scales, including Lab4Living's Future Bathroom Project (Chamberlain & Yoxall 2012), and the 5000plus project in Adelaide, South Australia (Hewett, 2012). By extending the time-period of contribution, these projects allow those who may not be able to attend a workshop due to the kinds of economic and time pressures described by Arnstein (1969) to participate.

Davis, A., Wallace, N. Langley, J. & Gwilt I. (2021). Low-Contact Co-Design: Considering more flexible spatiotemporal models for the co-design workshop. *Strategic Design Research Journal*. Volume 14, number 01, January – April 2021. 124-137. DOI: 10.4013/sdrj.2021.141.11

3. METHODOLOGY AND METHODS

The social distancing requirements resulting from the COVID-19 pandemic have placed immediate and perhaps long-lasting limitations on the ways humans interact with one another. For those engaged in co-creation this has required a reconsideration of what it means to collaborate when face-to-face interactions are not possible. This paper explores this space using an Action Research approach to iteratively visualize, map, engage in, reflect upon and devise alternative low-contact models and approaches to co-design. Action Research is described by Zuber-Skerritt (1992) as a cyclical approach that rotates through planning, action, observation and reflection. Swann (2002) suggests there are three determining factors in Action Research: a focus on changing social practices, engagement in participatory and collaborative activity and the use of an iterative, cyclical approach.

In this paper, reflection in-action and on-action (Schön, 1983) is intertwined with reflection on the shared experience of a global pandemic. This extends beyond Schön's (1983) reflective practice to encompass Forester's (1999) deliberative approach which calls for reflection on what is, with a politicized deliberation on what might be. The pandemic has added another layer to these reflective and deliberative practices, both of which are being influenced by lived experience, leading to what Kinsella (2007) calls embodied reflection. The 'reflective doodling' process used to think about co-design within this research is also a form of embodied reflection (Wallace, 2020a) as is demonstrated in the figures in this paper. Embodied reflection draws directly on experiences and practices and Escobar (2018, p.54) describes it as a kind of dance between action and reflection. As the pandemic unfolds, this dance continues.

This exploration is a collaboration between design researchers in Australia and the UK. The researchers are working on a variety of projects that employ the emergent low-contact co-design methodology (by necessity) within a range of test-bed cases in food, housing, and healthcare research projects. A selection of projects that were used as catalysts for the development of the models in this paper are outlined in Table 1 below.

Table 1: Test-bed projects for the development of low contact co-design approaches

Project Name	Synopsis	Key Stakeholder Groups
World Dental Federation (FDI)	A project for the World Dental Federation that is investigating perceptions of 'whole mouth health' among participant groups in Australia, Chile, Nigeria, Switzerland and the UK.	Aged Care residents (Australia) Expectant mothers (Chile) High-school children (Nigeria) Young adults (Switzerland) Older persons living independently (UK) Dental Professionals
Urinary Tract Infections (UTI)	Developing a device to quickly diagnose Urinary Tract Infections in primary care and reduce inappropriate antibiotic use. Specific work involves understanding how this device will be used in primary care settings and the relate requirements from stakeholder perspectives	General Practitioners Primary care nurses Patients
Downsizing	A project investigating the experiences of downsizing from suburban to apartment style inner-urban housing with a particular focus on housing needs and the development of principles for architectural design and urban planning.	Residents of a purpose-built vertical retirement community
Food Futures	Using a gamified co-research process to discover the food system to help community members to see the system, build their adaptive capacity and explore what the future of food in their region might be.	Local Government Agribusiness groups Community members Primary producers Food processors Food retailers
NOVELL	The Neuroscience Optimised Virtual Environments Living Lab (NOVELL) seeks to rethink and redesign rehabilitation environments through a patient centred approach that brings together design research, patient perspectives, and best practice from neuroscience.	Stroke Survivors Architects and Designers Healthcare practitioners (Rehabilitation Nurses, Physiotherapists, Speech Pathologists, Occupational Therapists, and Physicians)

The models of low-contact co-design that are discussed are therefore considered in terms of both their philosophical frameworks and practice-based exploration. We focus on the conceptual and applied processes of visualization and mapping used to explore the range of tools and techniques that enable designers to facilitate these Low-Contact Co-Design projects. These visualizations are consistent in that they all consider time and space as variables, but vary in the inclusion of further complicating variables (including people and power) as a way of exploring emergent knowledge and opportunities. The series of 'tools' included in the more granular models are presented as illustrations of the overarching frameworks, rather than as a definitive list of approaches.

4. THE MODELS

Upon determining that a series of partially completed research projects would not be able to continue through face-to-face workshops, the researchers held a number of meetings to consider how the co-design process could be adapted. The nature of the projects involved led to a series of complicating factors that meant that a wholesale 'shift-to-digital' approach would not be appropriate.

Beyond the limitation of not being able to host face-to-face workshop sessions, the projects required some quite specific approaches in order to address the needs of various stakeholder groups. These are summarized in Table 2 below.

Table 2: Specific challenges that were identified as having a significant impact on the co-design approaches

Challenge	FDI	UTI	Down-sizing	Food Futures	NOVELL
The design of a 'workshop' that could be run in multiple languages	X				
Accommodating participants who have a preference for working in physical/material ways in virtual or digital environments	X	X	X	X	X
Working with people who do not have access to a computer or the internet	X		X	X	
The ability to work with people with sometimes significant cognitive limitations, and from different demographic groups.	X		X		X

The models presented demonstrate the progression in the thinking from the early conception of a linear spectrum, through to more complex multivariate analyses.

4.1. Prototype 1: Three Forms of Co-Design

The notion of asynchronous co-design was developed through a discussion about using a printed workbook as an alternative to a live workshop. The idea was to compile the activities that would be typically completed within a workshop, into a format that could be completed 'asynchronously'. In the initial discussions about this concept, it was seen as a third alternative to the traditional face-to-face co-design workshop, and the virtual or digital co-design workshop (Figure 1).

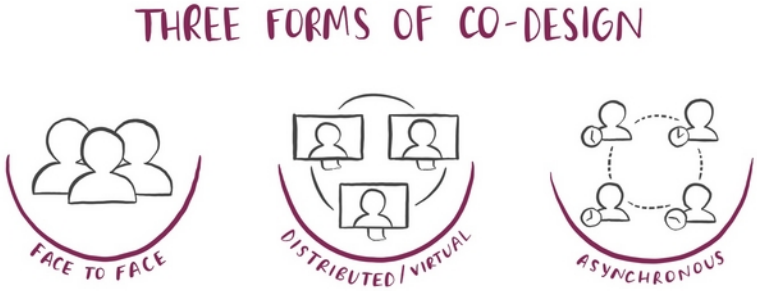

Figure 1. Prototype 1A: Three forms of co-design

Davis, A., Wallace, N. Langley, J. & Gwilt I. (2021). Low-Contact Co-Design: Considering more flexible spatiotemporal models for the co-design workshop. *Strategic Design Research Journal*. Volume 14, number 01, January – April 2021. 124-137. DOI: 10.4013/sdrj.2021.141.11

The specific advantages of this approach that emerged from the discussions are described in the key findings section of this paper. However, in further discussions, the idea that there were only three forms was challenged, and thinking emerged about whether these models could be conceived as a continuum rather than discrete entities. This led to the idea of a continuum from physical face-to-face to asynchronous (Figure 2).

Figure 2. Prototype 1B: Three forms of co-design visualized as a continuum

In these discussions, it became difficult to conceive of co-design processes that would sit between the models that had been described. This meant that the linear continuum, although important in highlighting that co-design activities take place in a range of ways, was not adequately describing the full range of possibilities. The identified limitations led to the realization that the key variables that the researchers were considering were location and time, and the idea that the formats might sit on a spectrum rather than a continuum.

4.2. Prototype 2: Spatiotemporal Quadrants

The next stage of the discussions used quadrants to map the relationships between time and space in co-design processes. This model allowed reflection on the different ways interactions occur with co-design tools when time or space deviates from the synchronous experience of a face-to-face workshop. Further reflection on this model revealed a shift in focus from events to processes and prompted a conceptualization of the co-design models as being fluid in when and how they could be used.

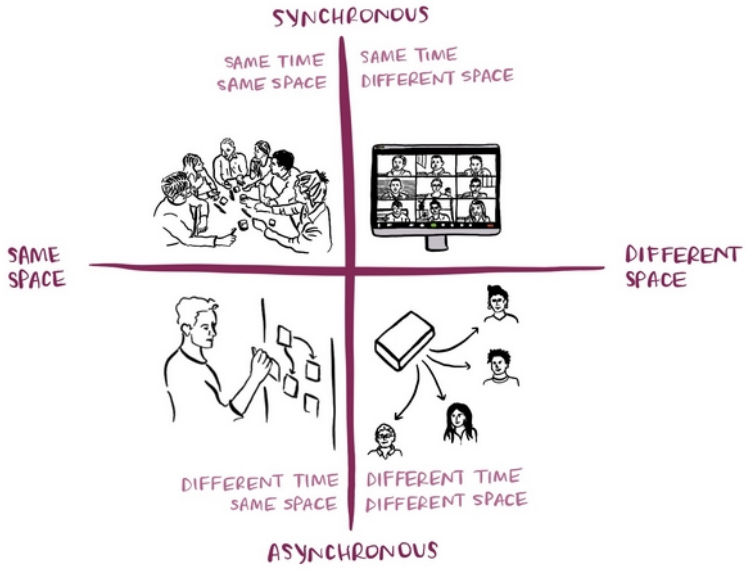

Figure 3. Prototype 2: Spatiotemporal quadrants of co-design approaches

4.3. Prototype 3: Blended Assemblages Of Co-Design Processes

Having established the four quadrants, the researchers' discussions turned to exploring the application of these approaches to their real-world projects. The notion of the co-design workshop as an assemblage of methods emerged as a link between the spectrum and the planning process. Rather than considering the co-design process as sitting within just one of these quadrants, the emergent thinking revealed an opportunity to consider the spectrum of

Davis, A., Wallace, N. Langley, J. & Gwilt I. (2021). Low-Contact Co-Design: Considering more flexible spatiotemporal models for the co-design workshop. *Strategic Design Research Journal*. Volume 14, number 01, January – April 2021. 124-137. DOI: 10.4013/sdrj.2021.141.11

approaches as describing specific methods (tools) that could be assembled into a methodology (co-design process). This suggested assemblage theory with a social complexity lens (DeLanda, 2019) could help inform continuing explorations.

The researchers concluded that many methods can be applied in different ways and can therefore sit within different parts of the spectrum. However, seeing the spatiotemporal dimensions as elements that can be blended to form an overarching methodological approach provides the ability to consider a unique range of responses to the questions of 'who?', 'what?', 'where?', and 'when?'.

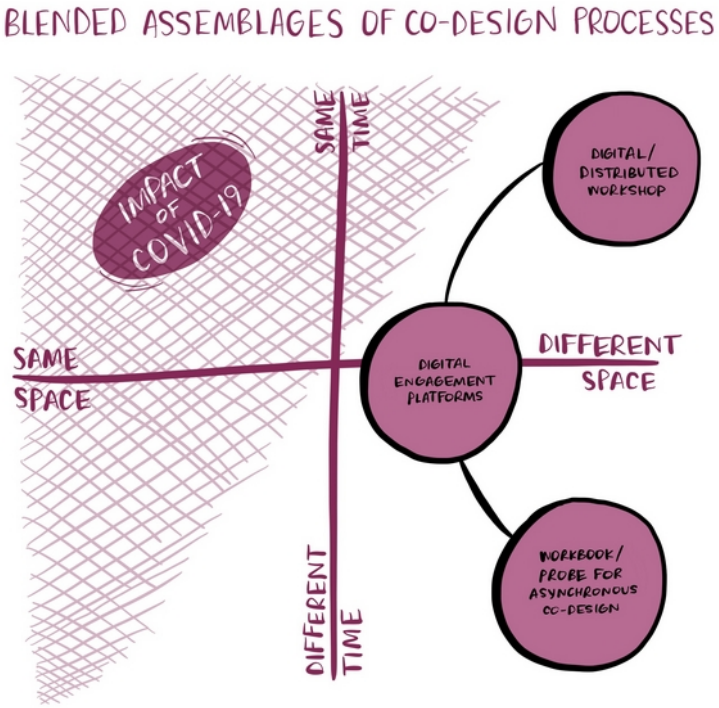

Figure 4. Prototype 3A: Considering an assemblage of methods in the context of COVID-19

Figure 4 captures this notion through the assembly of a series of co-design tools that sit on different parts of this spectrum into a single co-design process. The bias toward the right-hand side of the diagram reflects the challenges posed by COVID-19. However, beyond COVID-19, this blending of approaches in co-design could maximize potential inclusivity.

4.4. Prototype 4: A Multivariate Analysis Of Co-Design Tools

Perhaps the most complex model explored by the researchers to-date is the multivariate analysis that extends beyond spatiotemporal measures to also consider sociocultural aspects using an axis representing people and power. This thinking emerged from consideration of the differences between 'blue-sky' co-design processes that seek to reimagine entire systems, through to prescriptive co-design processes that seek to solve a highly specific problem.

The discussions of spatiotemporal models were expanded by the consideration of the roles played by designers/researchers and participants, and the power relations in co-design processes. Here, embodied reflection guided explorations of how different co-design processes supported different spatiotemporal and sociocultural experiences.

The relation between people and power is a core consideration in decolonial approaches which aim to be less extractive and more generative, explicitly repositioning the designer/researcher from expert to collaborator (Escobar, 2018). Adopting a decolonial or postcolonial perspective acknowledges the power dynamics that are inherent in social relations, particularly during co-creation. Recognizing this and working to decolonize

Davis, A., Wallace, N. Langley, J. & Gwilt I. (2021). Low-Contact Co-Design: Considering more flexible spatiotemporal models for the co-design workshop. *Strategic Design Research Journal*. Volume 14, number 01, January – April 2021. 124-137. DOI: 10.4013/sdrj.2021.141.11

approaches is an ongoing endeavour that is often uncomfortable and particularly challenging for a settler/settled mindset (Kluttz et al., 2020).

The multivariate model (Figure 5 below) was used to reflect on the ways time, space, people and power can influence processes. It also begins to map the difference between processes that are used in singular (or particular) ways and processes that can occur in multiple (or flexible) ways. This model facilitates a deeper reflection on questions of 'who, what, where and when' by mapping each of these aspects in relation to time, space, people and power.

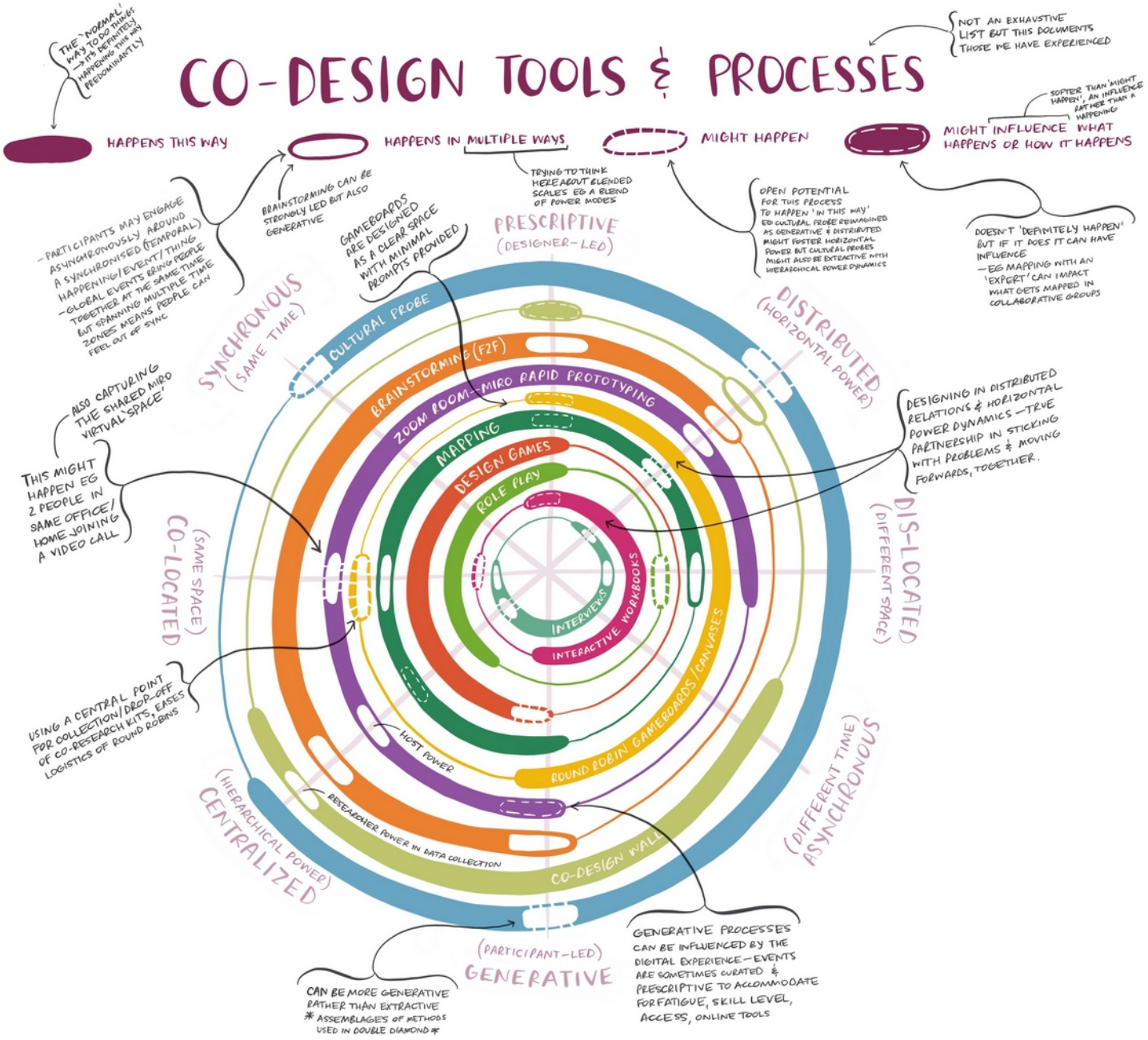

Figure 5. Prototype 4: A multivariate draft analysis of co-design tools and processes

5. DISCUSSION

The communicative process associated with the development of the models presented here is ongoing, however, significant insight has emerged into the questions posed at the beginning of this paper. Importantly, these reflections are not only about responding to COVID-19 but offer an extension to the possibilities for co-design in broader and more inclusive contexts. The visual models are consciously presented as 'prototypes and 'drafts'

Davis, A., Wallace, N. Langley, J. & Gwilt I. (2021). Low-Contact Co-Design: Considering more flexible spatiotemporal models for the co-design workshop. *Strategic Design Research Journal*. Volume 14, number 01, January – April 2021. 124-137. DOI: 10.4013/sdrj.2021.141.11

(including notation), as a way recognizing these diagrams represent emergent and unresolved thinking.

5.1. Reflection On 'Who' Should And/Or Can Participate?

One of the earliest hypotheses to emerge was that moving beyond a workshop format creates opportunities for including a broader range of participants. In a number of the projects being developed alongside these discussions, participant groups were identified that were unlikely to participate in a workshop session but may engage in other ways. This includes those for whom the workshop environment is physically, socially, emotionally, linguistically, or cognitively difficult to engage with. By shifting participation beyond the environment of a workshop, it was hypothesized that participants would have the ability to engage in ways that suited them, rather than those that suited the designer, researcher, or facilitator.

Early results that are coming from these processes are promising, with the Downsizing project for example, achieving a near 100% participation rate among residents of the retirement community, and the NOVELL project being able to engage with stroke survivors that cannot participate in a face-to-face workshop. Low-Contact Co-Design processes have therefore allowed the researchers to reach beyond those most 'able', to include a more diverse range of voices.

The benefits of an increased variety of participants are immediately evident for systems-oriented design where representing the 'whole of system' in one workshop can be challenging; particularly when creating spaces that empower stakeholders to engage with and contribute to processes in multiple ways. An early-stage food system transition project has also shown promising results for increased inclusion using a round robin generative approach. The Low-Contact Co-Design approach may therefore be useful to the Transition Design community as well as the co-design and co-creation communities. The research continues with opportunities being investigated to explore the low-contact co-design approaches on projects where cultural safety is an issue, and with regional and remote communities.

This is significant in that it begins to address a number of the key concerns in the literature, from Arnstein's commentary on the inflexibility of time-commitments associated with community consultation events (Arnstein, 1969) to London and Cadman's (2009) concern about self-selection of workshop participants.

5.2. Reflection On 'What' Should And/Or Can Be Done?

Many of the tools for creative participation may appear the same (for example paper, markers, post-its) but how these tools are used is fundamentally altered in Low-Contact Co-Design settings. The simple activity of gathering around a blank piece of paper to share ideas in a workshop cannot be easily replaced with a workbook or gameboard. As an independent activity, interaction with reimagined tools should be conceived in new generative and iterative ways (such as completing gameboards using a round-robin approach or completing multiple rounds of workbooks). What researchers and designers ask of participants (that is, to participate) does not necessarily change, however, the way the tools of participation are used does.

Davis, A., Wallace, N. Langley, J. & Gwilt I. (2021). Low-Contact Co-Design: Considering more flexible spatiotemporal models for the co-design workshop. *Strategic Design Research Journal*. Volume 14, number 01, January – April 2021. 124-137. DOI: 10.4013/sdrj.2021.141.11

Low-Contact Co-Design expands on traditional workshop participation tools by reimagining what they are and how they occur. In doing so, some familiar tools take on new contexts and provide new opportunities for exploration. Tools for documenting experiences can be released from the spatiotemporal context of the workshop, giving participants the ability to document events in-situ and over longer time periods. While this example is closely related to the cultural probe, using these tools as a part of an ongoing iterative process rather than an extractive process can be seen as shifting them from cultural probe to co-design.

A significant risk in a dis-located Low-Contact Co-Design process (the 'different time, different space' model) is the removal of live communication opportunities between participants and the serendipitous discoveries that can emerge from this process. It can therefore be seen as critical that the approaches taken to engagement critically evaluate how these kinds of 'discussions' may take place. In the round-robin game example, this is managed through the exposure to others' ideas in subsequent rounds, while in the workbook process, the findings and responses of participants become the basis for the next workbook in a similar process to the Delphi method (Linstone & Turoff, 1975). A key aspect of the face-to-face setting is the ability for participants to position their own data (personal experiences) in relation to other people's data (experiences) and enabling each participant to 'see their data' in relation to others. These feedback loops are a key differentiator from the extractive cultural probe. The texture and tone of instruction and invitation within these distributed materials, when there is no co-design facilitator present in person, takes on a new level of importance.

5.3. Reflection On 'Where' Should And/Or Can Co-Design Take Place?

The physical environment within which low-contact co-design takes place is likely to be a participants' home or workplace. As discussed in section 6.2 above, this presents new opportunities for co-design activities that actively engage with an in-situ context. However, it is not yet clear 'where else' co-design could take place as opportunities for exploration continue to emerge. Public or shared community spaces are also a potential venue and opportunities offered in these types of places have begun to be explored, but COVID-19 has significantly limited access to these environments.

In designing activities for these spaces, the physical resources of participants become very important. For example, in a workshop environment, equipment for carrying out activities can be provided, but in a home-based environment, access to these resources cannot be guaranteed. The inclusion of all necessary materials for participation (as part of a kit or probe) ensures equitable access to participants but can also add to the bulk and expense of producing materials. Consideration for how co-design materials are distributed and collected is also an important factor.

5.4. Reflection On 'When' Should And/Or Can Co-Design Happen?

Initial explorations suggest low-contact co-design holds potential relevance beyond the COVID-19 pandemic. As discussed above, historical limitations to participation such as disability, working schedule, school attendance or remote living can influence a group's composition in face-to-face workshops. Low-Contact Co-Design can extend invitations to a larger and more diverse group of participants, thereby increasing the democracy of co-

Davis, A., Wallace, N. Langley, J. & Gwilt I. (2021). Low-Contact Co-Design: Considering more flexible spatiotemporal models for the co-design workshop. *Strategic Design Research Journal*. Volume 14, number 01, January – April 2021. 124-137. DOI: 10.4013/sdrj.2021.141.11

design. Broadening the democratic nature of co-design also connects to the pursuit of a decolonial co-design that seeks greater inclusion in non-extractive ways.

The time commitment of participation in Low-Contact Co-Design is also reduced by eliminating travel-time to central spaces and can more easily accommodate a participant's regular routine by allowing for asynchronous activity. The combination of processes occurring in different spaces and at different times further increases flexibility and as discussed above, can also extend the potential breadth of participation.

Outside of 'when' as related to synchronous/asynchronous participation is 'when' within a project's overall conception. As outlined at the beginning of this paper this also connects directly to the idea of collaboration as opposed to extraction. Working with communities of people in ways that distribute power horizontally invites their full participation and contributes to an understanding of 'when' in co-design as being persistent within a project's continuum from inception to completion.

6. CONCLUSION

This paper has discussed four models for co-design that respond to the need for low-contact and social distancing as a result of COVID-19. These models have been presented as provocations to stimulate discussion and to push the field to consider the opportunities that are presented by the disruption to face-to-face workshops. The models reveal shifts in thinking and show how the practice-based explorations have contributed to the development of academic knowledge. Questions of 'who', 'what', 'where' and 'when' have been examined, and discussion reveals the potential for low-contact co-design to contribute beyond COVID-19 to expand the inclusiveness of co-design processes and respond to some of its historical limitations.

This paper has identified key opportunities for further exploration including the ability to enhance the democratic nature of processes by including participants that would not typically choose to, or necessarily be able to, participate in a face-to-face workshop; and the ability to engage with people's experiences in-situ rather than bringing people to a third space. It positions the spatiotemporal framework for co-design as a foundational element in planning and undertaking co-design practice, and demonstrate its ability to catalyse the development of new methods and approaches in co-design.

ACKNOWLEDGMENTS

The frameworks presented in this paper have been developed while working with teams at Sheffield Hallam University Lab4Living and The University of South Australia. The authors also acknowledge the following:

World Dental Federation (FDI) Project: Chris Redford, Dr Gemma Wheeler, funding from Colgate and The World Dental Federation

Urinary Tract Infections (UTI) Project: This project is funded by the National Institute for Health Research (NIHR) under its Invention for Innovation (i4i) Programme (grant reference: II-LB-0417-20004). The views expressed are those of the author(s) and not necessarily those of the NIHR or the Department of Health and Social Care.

Davis, A., Wallace, N. Langley, J. & Gwilt I. (2021). Low-Contact Co-Design: Considering more flexible spatiotemporal models for the co-design workshop. *Strategic Design Research Journal*. Volume 14, number 01, January – April 2021. 124-137. DOI: 10.4013/sdrj.2021.141.11

Downsizing Project: This project has been conducted in partnership with Chief Investigator Dr Damian Madigan, and Associated Investigators Dr David Kroll and Prof Stefanie Dühr.

Food Futures Project: This research receives funding from Net Zero Lab

NOVELL Project: This research is funded by the Felton Bequest and the University of Melbourne. Support has been provided by the Florey Institute of Neuroscience and Mental Health, Melbourne University and Swinburne University.

REFERENCES

Arnstein, S. R. (1969). A ladder of citizen participation. *Journal of the American Institute of planners, 35*(4), 216-224. DOI: 10.1080/01944366908977225

Binder, T., Brandt, E., Ehn, P., & Halse, J. (2015). Democratic design experiments: between parliament and laboratory. *CoDesign, 11*(3-4), 152-165. DOI: /10.1080/15710882.2015.1081248

Björgvinsson, E., Ehn, P., & Hillgren, P.-A. (2012). Design Things and Design Thinking: Contemporary Participatory Design Challenges. *Design Issues, 28*(3), 101-116. DOI: 10.1162/DESI_a_00165

Bockelbrink, B. James Priest, J. &and David, L. (2020). *Sociocracy 3.0 Concepts and principles*. Retrieved November 6, 2020, from https://patterns.sociocracy30.org/concepts-and-principles.html

Chamberlain, P. & Yoxall, A. (2012) 'Of Mice and Men': The Role of Interactive Exhibitions as Research Tools for Inclusive Design, *The Design Journal, 15*(1): 57-78. DOI: 10.2752/175630612X13192035508543

Cottam, H., & Leadbeater, C. (2004). RED paper 01: Health: Co-creating services. *Design Council.* Retrieved November 6, 2020, from https://www.designcouncil.org.uk/sites/default/files/asset/document/red-paper-health.pdf

Davis, A. (2018). *Co-creation in the built environment: An exploration of end-user engagement in the urban living laboratory*. (PhD Thesis). University of South Australia, Adelaide, Australia.

DeLanda, M. (2019). *A new philosophy of society: Assemblage theory and social complexity*. Bloomsbury Publishing.

Ehn, P. (2011). Participation in Design Things. In K. Friedman & E. Stolterman (Eds.), *Design Things*. Cambridge, Massachusetts: MIT Press.

Escobar, A. (2018). *Designs for the pluriverse: radical interdependence, autonomy, and the making of worlds.* Durham, NC: Duke University Press.

Esteva, G. (1987). Regenerating people's space. *Alternatives, 12*(1), 125-152. DOI: 10.1177/030437548701200106

Forester, J. (1999). *The deliberative practitioner: Encouraging participatory planning processes.* Cambridge, Massachusetts: MIT Press.

Forester, J. (2013). On the theory and practice of critical pragmatism: Deliberative practice and creative negotiations. *Planning Theory*, 12(1), 5-22. DOI: 10.1177/1473095212448750

Franz, Y. (2014). Chances and challenges for Social Urban Living Labs in Urban Research. In P. Ballon (Ed.) Proceedings of ENoLL OpenLivingLab Days 2014, 105-114. Brussels, Belgium: European Network of Living Labs. Retrieved 8 July, 2016, from https://www.scribd.com/doc/238614730/OpenLivingLab-Days-2014-Conference-Proceedings

Gaver, B., Dunne, T., & Pacenti, E. (1999). Design: cultural probes. *Interactions, 6*(1), 21-29. DOI: 10.1145/291224.291235

Hewett, B. (2012). *The Role of the Government Architect in the Integrated Design Commission South Australia (IDC SA)*. In C. Whitzman & R. Fincher (Eds.) Proceedings of State of Australian Cities Conference 2011, 1-16. Perth, Australia: Australasian Cities Research Network. Retrieved 1 November, 2020, from http://soac.fbe.unsw.edu.au/2011/papers/SOAC2011_0165_final.pdf

Ind, N., & Coates, N. (2013). The meanings of co-creation. *European Business Review, 25*(1), 86-95. DOI: 10.1108/09555341311287754

Karasti, H. (2014). *Infrastructuring in participatory design*. In O.S. Iversen, H. Winschiers-Theophilus, V. D'Andrea, A. Clement, A. Botero & K. Bødker (Eds.) Proceedings of the 13th Participatory Design Conference: Volume 1, 141-150. New York, NY: Association for Computer Machinery. Retrieved 8 July, 2019, from https://dl.acm.org/doi/10.1145/2661435.2661450

Kinsella, E. A. (2007). Embodied reflection and the epistemology of reflective practice. *Journal of Philosophy of Education, 41*(3), 395-409. DOI: 10.1111/j.1467-9752.2007.00574.x

Kluttz, J., Walker, J., & Walter, P. (2020). Unsettling allyship, unlearning and learning towards decolonising solidarity. *Studies in the Education of Adults, 52*(1), 49-66. DOI: 10.1080/02660830.2019.1654591

Krzywoszynska, A., Buckley, A., Birch, H., Watson, M., Chiles, P., Mawyin, J., . . . Gregson, N. (2016). Co-producing energy futures: impacts of participatory modelling. *Building Research & Information, 44*(7), 804-815. DOI:10.1080/09613218.2016.1211838

Laloux, F. (2014). R*einventing organizations: A guide to creating organizations inspired by the next stage in human consciousness*. Brussels, Belgium: Nelson Parker.

Land, C. (2015). *Decolonizing solidarity: Dilemmas and directions for supporters of indigenous struggles.* London, UK: Zed Books Ltd.

Linstone, H. A., & Turoff, M. (Eds.). (1975). *The delphi method*. Reading, MA: Addison-Wesley.

London, K. A., & Cadman, K. (2009). Impact of a fragmented regulatory environment on sustainable urban development design management. Architectural Engineering and Design Management, 5(1-2), 5-23. DOI: 10.3763/aedm.2009.0902

Manzini, E., & Rizzo, F. (2011). Small projects/large changes: Participatory design as an open participated process. *CoDesign, 7*(3-4), 199-215. DOI: 10.1080/15710882.2011.630472

Mulder, I., & Stappers, P. J. (2009). *Co-creating in Practice: Results and Challenges*. In Proceedings of 2009 IEEE International Technology Management Conference (ICE), 1-8. New York, NY: Institute of Electrical and Electronics Engineers. Retrieved 9 December, 2016, from https://ieeexplore.ieee.org/document/7461369

Muller, S. (2014). Co-motion: Making space to care for country. *Geoforum, 54*, 132-141. DOI: 10.1016/j.geoforum.2014.04.011

Munthe-Kaas, P., & Hoffmann, B. (2016). Democratic design experiments in urban planning–navigational practices and compositionist design. *CoDesign, 13*(4), 1-15. DOI: 10.1080/15710882.2016.1233284

Petrescu, D., Petcou, C., & Baibarac, C. (2016). Co-producing commons-based resilience: lessons from R-Urban. *Building Research & Information, 44*(7), 717-736. DOI: 10.1080/09613218.2016.1214891

Pierri, P., 2017. Decentralising Design. Raising the Question of Agency in Emerging Design Practice. *The Design Journal 20*(1): S2951-S2959. DOI: 10.1080/14606925.2017.1352805

Prendiville, A., Gwilt, I., & Mitchell, V. (2017). Making sense of data through service design–opportunities and reflections. In D. Sangiorgi & A. Prendville (Eds.) *Designing for Service, Key Issues and New Directions* (pp. 227-236). London, UK: Bloomsbury.

Sanders, E. B. N., & Stappers, P. J. (2008). Co-Creation and the New Landscapes of Design. *CoDesign, 4*(1), 5-18. DOI: 10.1080/15710880701875068

Sanders, E. B. N., & Stappers, P. J. (2012). *Convivial design toolbox*. Amsterdam, Netherlands: BIS Publishers.

Sanders, E. B.. N., & Stappers, P.J. (2014). Probes, toolkits and prototypes: three approaches to making in codesigning. *CoDesign*, 10(1), 5-14. DOI: 10.1080/15710882.2014.888183

Schön, D. A. (1983). *Reflective practitioner: how professionals think in action*. New York: Basic Books.

Sennett, R. (2012). *Together: The rituals, pleasures and politics of cooperation.* New Haven, CT: Yale University Press.

Silvertown, J. (2009). A new dawn for citizen science. *Trends in ecology & evolution, 24*(9), 467-471. DOI: 10.1016/j.tree.2009.03.017

Swann, C. (2002). Action research and the practice of design. *Design Issues, 18*(1), 49-61. DOI: 10.1162/07479360252756287

Tuck, E., & Yang, K. W. (2012). Decolonization is not a metaphor. *Decolonization: Indigeneity, education & society, 1*(1), 1-40. Retrieved 7 September, 2020, from https://jps.library.utoronto.ca/index.php/des/article/view/18630

Wallace, N. (2020a). Thinking while drawing and drawing to think: Exploring 'reflective doodling' as a critical reflective practice in design for transitions. In S. Boess, M. Cheung & R. Cain (Eds.) *Proceedings of DRS2020 Conference,* Brisbane, Australia, 204-222. London, UK: Design Research Society.

Wallace, N. (2020b). Creating change: A case study of transformation, from 'making greener things' towards 'design for transitions'. (PhD Thesis). University of South Australia, Adelaide, Australia.

Woods, M., Balestrini, M., Bejtullahu, S., Bocconi, S., Boerwinkel, G., Boonstra, M., ... & Fazey, I. (2018). *Citizen sensing: a toolkit. Making Sense.* Dundee : University of Dundee. DOI: 10.20933/100001112

Zuber-Skerritt, O. (2001) Action Learning and Action Research: Paradigm, Praxis and Programs. In S. Sankara, B. Dick, & R. Passfield (Eds.) *Effective Change Management through Action Research and Action Learning: Concepts, Perspectives, Processes and Applications* (pp. 1-20). Lismore, Australia: Southern Cross University Press.

Davis, A., Wallace, N. Langley, J. & Gwilt I. (2021). Low-Contact Co-Design: Considering more flexible spatiotemporal models for the co-design workshop. *Strategic Design Research Journal.* Volume 14, number 01, January – April 2021. 124-137. DOI: 10.4013/sdrj.2021.141.11